

ABSTRACT

Methods for storing replacement data in a multi-way associative cache are disclosed. One method comprises logically dividing the cache's cache sets into segments of at least one cache way; searching a cache set in accordance with a segment search sequence for a segment currently comprising a way which has not yet been accessed during a current cycle of the segment search sequence; searching the current segment in accordance with a way search sequence for a way which has not yet been accessed during a current way search cycle; and storing the replacement data in a first way which has not yet been accessed during a current cycle of the way search sequence. A cache controller that performs such methods is also disclosed.